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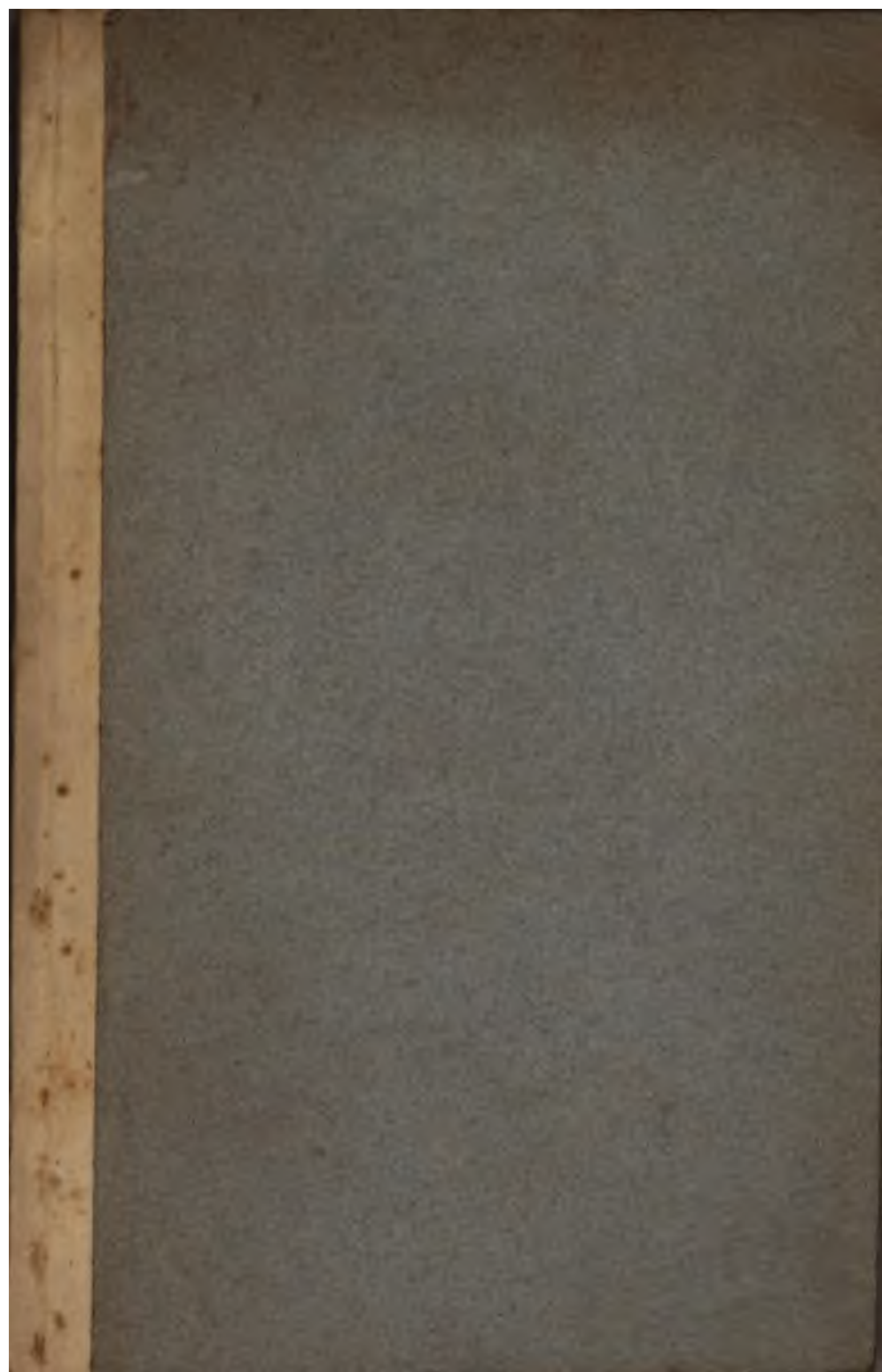
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Instinct.

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A PRIZE ESSAY

READ IN

THE THEATRE, OXFORD,

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BY

FRANCIS ALLSTON CHANNING, B.A.,

LATE SCHOLAR OF EXETER COLLEGE.



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1865.

Observe

INSTINCT.

INSTINCT has always been one of the great mental puzzles.

Its meaning, its extent, its spiritual and material relations have been a fruitful source at once of speculation and of error. As a philosophic hypothesis it has been bandied about, twisted and turned, extended or narrowed to suit each new theory of mind and matter. To the popular mind it has been a convenient scape-goat for all that is obscure and unaccountable. Like chance and destiny, it has been a comprehensive term to cloak man's ignorance of cause.

Introduction.

But at least the popular view, such as it is, is not distorted; it is too catholic to be so. It is not brought to the test of one-sided principles, nor sacrificed to a logical consistency of which it may prove in turn the stumblingblock. It may be confused, it may cover too much ground, and be too inaccurate for scientific use. On the other hand, it is the result of the practical experience of men in general, the aggregate of inferences naturally drawn from undirected and unbiassed observation.

For two reasons, then, the examination of the popular view of Instinct is an appropriate introduction to this inquiry. First, for the practical hints that may be drawn from the popular view, as to the limits of the subject and the points to which analysis should be directed. Secondly, the present object is to explain a word in an established connection, rather than to devise new applications; and the connection depends almost entirely on popular usage.

To what, then, is the term Instinct popularly applicable, and to what is it not?

Men do not speak of rivers flowing downwards, or of fire burning upwards, or of chemical forces uniting to produce new forces by Instinct. But when the sensitive plant shrinks from the touch, it does so instinctively.

Popular application.

When the oyster closes its shell over some dainty morsel, it is by Instinct. The bee builds its cells, organizes its community, chooses its flowers, finds its way homewards from distant meadows by Instinct. The salmon returns to the fresh river of its birth to deposit the spawn of the next generation by Instinct. It is by Instinct that the tailor-bird sews leaves together to conceal its brood from danger. It is by Instinct that the beaver builds its dams and storehouses.

The most obvious distinction between cases where the term is applicable, and cases where it is not, is that the former are presented by organic life, the latter not. Hence the first point in the popular view of Instinct is that it is limited to organic life.

But again, it is not Instinct by which the dog recognises his name, welcomes his master, and growls at strangers. It is not by Instinct that a good hunter calculates his jumps. It would not be called Instinct in a gorilla to shake the tree on which it has perched to prevent its pursuers from climbing after it.

Still further, it is not by Instinct that teeth grow or bones harden, that animals breathe and digest.

From these additional cases where the term is not applicable, it may be seen that Instinct is not applied to powers of judging, choosing, and profiting by past experience, nor further to the simply physical powers of organic life. With the latter, indeed, Instinct has little to do in the popular view. Its chief employment is as an antithesis to intelligence. Both are thought of as active powers. But in the latter there is a conscious employment of certain means to certain ends. In the former there cannot be said to be choice, for the determination is invariable. Nor can there be consciousness of an end, for the means are still put in action, when the end is removed. And yet the results of these instinctive operations are as perfect and as nicely adapted to the uses of the creatures as if they sprang from a very high intelligence. Instinct, then, acts like intelligence, but blindly; and like will, but fixedly. It is a name for ignorance of a cause which can only be represented under five analogies. If the popular view attempts at all to

solve the puzzle, it is by bringing in a direct supernatural agency.

But the usage of language allows Instinct to man also. And this application may perhaps give a clearer view of what is meant. Other creatures can only be observed from without as matter of guess-work. Men are to themselves the objects of inward reflection. Language seems to intimate that men think, feel, and act by Instinct, as well as by other powers. Beliefs which are believed because they are believed, are instinctive. But the moment a reason is assigned for them, as authority or experience, they cease to be called instinctive. This opposition is vaguely expressed in such maxims as "second thoughts are better than first." First thoughts are impulsive or instinctive, second thoughts deliberate or rational. Again, nothing is more commonly spoken of than instinctive likes and dislikes. Such likes or dislikes are not only without a conscious reason, (for then they would not be called instinctive,) but are often opposed to reason. Instinct in its popular sense, as applied to feeling, is embodied in the feminine virtue "tact." The natural love of parents for their children is instinctive. But if a motive were assigned for the love, as calculation of future advantages, it would no longer be called instinctive. Again, men act instinctively. The return of a blow is instinctive; the closing of the eyes to prevent the entrance of dust is instinctive. But language does not extend the term to the circulation of the blood or the operations of digestion.

The result, then, of its application to man is nearly the same as in the case of other creatures. But its relations to intelligence and to will are more clearly brought out. The moment either of these powers enters into an action, it ceases to be called instinctive. The main point, then, of Instinct seems to be that it is irrational and impulsive. Thus it still remains a negative notion. The most positive part of it would seem to be the belief, which itself seems instinctive, (for it is combated by reason,) that Instinct is truer to nature than intelligence is. This may be an instance of "omne igno-

tum pro magnifico," but its existence is a practical proof of the reality of the faculty.

Thus the popular view, though it only gives a vague, negative notion of the meaning of Instinct, yet indicates pretty clearly the principles by which the limits of the subject are to be laid down.

Before attempting the analysis of the phenomena to which the term is applied, it will be as well to review a few prominent theories of Instinct, and the principles from which they have been evolved.

Philosophic
views.

As has before been hinted, philosophers seem rather to have shaped their notions of Instinct to fit in with some central principle, than to have treated the subject on its own merits. According as they have started from within or from without in solving the problem of truth and being; according to the limits of the principles assumed as guides, Instinct has ranged from intelligence to mechanism, has been made the source of all faculties, or has been done away with itself; or, again, has been a stage in the development of life.

To one thinker Instinct is simple mechanical action, unconscious and unadaptive, the play of springs and wheels wrought and worked by the Divine hand.

Descartes.

This is established by two points of contrast with Reason, which he regards as essentially conscious and adaptive. Creatures guided by the former power have no speech, or in other words, no means of communicating or even connecting ideas. This is not from want of the organ, for parrots pronounce words. What is wanting, then, is the power which regulates the organ, and makes it adaptable to variety of circumstances. Again, in a few definite operations they attain a perfection and a certainty equal or greater than human reason could attain, but for other operations they are wholly incompetent. The power by which they act, then, is not knowledge, which grasps all circumstances, nor intelligence, which adapts itself to all circumstances indifferently, but a fixed organic adaptation for a few special acts. Nature—i.e. the will of God—has constructed these machines with marvellous complexity and

precision for certain definite operations, and these operations are solely the result of nature working in them according to the disposition of their organs. And this view is obviously not to be confined to the lower creation. Man, too, in all operations which are not directed by reason, is a machine, and acts by instinct, if that term be applied to the power.

This view results from the application of two principles. First, Thought is not only the cause whereby man recognizes his existence; it is also the sum and substance of mental existence. The functions of the soul are determinations passive and active from within and from without. These determinations are all conscious thoughts. Beside them there is nothing but the mechanical play of organism. By this abrupt distinction, Instinct, as being an unconscious principle, is wholly excluded from Mind.

The other principle is that the creative activity of God is perpetual, not only setting but keeping in motion the whole machinery of existence. Not only the organs of life and their functions are the work of God, but each successive operation is a distinct emanation from the Divine will. Hence there are no such things as active secondary causes, and Instinct is reduced to the passive play of machinery in the hands of the Creator.

Another great thinker would regard Instinct as one of the principles of the self-development of nature. Each creature is a finite force, or rather a harmony of finite forces. Once organized and set in motion by the Creator, these forces have an independent activity of their own. This activity is not a play of force in response to outward impressions. It is the development of successive changes, the principles of which are embodied in the original nature of the creature. Each nature is a germ containing within itself, on the one hand, certain primitive dispositions and tendencies active and passive, and on the other, certain inherent forces, the sphere of whose activity is the expansion and development of those dispositions and tendencies. Again, there are no differences of kind among natures. In all are original disposition and original forces. Each nature is an epitome of all others. B

Leibnitz.

there are differences of degree depending on the distinctness of the original dispositions and on the vigour of the self-developing forces. Souls are natures of the higher degree, bodies of the lower. The former are described as clear, the latter as obscure.

The same mode of distinction can be applied to the inherent forces as to the natures which they develop. They are of two degrees, the one obscure, unconscious, irrational, the other luminous, conscious, rational. The former may be called Instinct, the latter Reason. The former ranges through all grades of natures, the latter appears only in the highest degrees of development. The former carries out the primitive dispositions, whether corporeal, or moral, or intellectual, immediately and irresistibly, but unconsciously; the latter grasps and develops them by conscious reflection.

The full meaning of this view can only be obtained by considering another principle laid down by the same philosopher. Applicable accurately only to the higher order of natures, it will be applicable, in a slightly different sense, to all other orders. The principle is this: the mind is always active, but not always conscious. And again, its activity is extended over an immensity of objects, but its consciousness confined to a few. The unconscious activities of the mind are perceptions, the conscious activities are apperceptions. The inherent force which determines the latter is Reason; that which determines the former is Instinct. The admission of latent modifications of mind at once opens a larger sphere for Instinct. It is not mechanical but mental activity, and develops not only the performed aptitudes for action, but also those of intellectual and moral truth.

The theory of perception maintained by Jacobi gives even
 a wider and higher scope to Instinct. He uses
 the term, in common with 'belief' and 'revelation,'
 to express the immediate and spontaneous beginning of knowledge. Nature is essentially true to herself, and reveals her realities in certain primary intuitive beliefs or instincts, which are the principles of all knowledge and of all activity. These instincts are the basis and the ultimate criterion of all deri-

vative and acquired knowledge. They are a starting-point and a guide in all relations with the material world without and the spiritual world within. Instinct, then, is the conscious but immediate harmony of nature with herself, the ultimate basis of all life, intellectual, moral, material.

A somewhat similar result, so far as Instinct is concerned, was arrived at by Hume on totally different principles. Rationally, there is no reality either for mind or matter. There are impressions and there are ideas, their feeble copies, and there are connections in the sense of cause and effect established between ideas. These connections are not given by demonstrative reasoning, for the denial of the effect involves no contradiction of the cause. Nor by probable reasoning, for it is itself based on the connection, and so cannot establish the belief without producing a vicious circle. The only alternative is to reject all rational ground, and base all knowledge and inference on a natural law. The connection of cause and effect can only be given by repetition, and the sole necessity of the connection arises from habit or custom, mechanically developed from an original tendency or instinct. The same principles may be extended from man to the lower creation. The differences are, that in them the connections established by habit are neither so numerous nor so general, while on the other hand animals are endowed with a ready-made experience in their instincts. This is confirmed by the fact that the higher you go in the scale of creation, the more helpless and imperfect the state at birth, and *vice versa*.

Instinct, then, is the basis of a practical reality which we are compelled to accept as matter of belief, though incapable of grasping it as matter of conviction.

A very striking view of Instinct results from the sensationalism of Condillac. The pure mechanism of Descartes, and the unconscious intelligence of Leibnitz, are, he said, insufficient to account for instinctive actions. The only remaining source is intelligence itself. Still, instinctive actions are evidently unconscious and involuntary. Hence they must be referred to a state of the intel-

ligence apart from consciousness and will. Such a state can only result from habit, by which operations become mechanical without the intervention of the judgment and motive which first determined them. Instinct, then, is intelligence deprived of reflection by habit. The degree of development, which may be called Instinct, will obviously vary according to the complexity of the organization, and the extent of the intelligence. In animals the organization is simple, the wants few, and consequently only a small number of particular judgments are necessary to meet the conditions of their existence. These are incessantly repeated, and hence speedily become mental habitudes. After a brief activity their intelligence exhausts its objects and lapses into an unconscious mechanism. Man, on the contrary, has a highly complex organization and infinite variety of wants, for he has to satisfy intellectual and moral cravings as well as bodily needs. There are perpetual new combinations of circumstances which prevent Instinct or Habit from absorbing the whole of man's nature. Reason makes use of the habits it is continually extending and multiplying, as stepping-stones to a wider and higher activity. By this theory the facts of genius, taste, and kindred faculties may be referred to Instinct. Reflection upon repeated judgments as to truth, converts relations into mental habitudes. Hence the conclusion may be grasped before the premises—relations are seized as if intuitively: so belief is conviction become habitual or instinctive. The same applies to men's judgments about the beautiful, which, when habituated, form the mental instinct, taste.

It must be noted that in this view Instinct is not a universal, but a particular faculty. It consists in the coherence of special judgments. It is only because habit is second nature that we assign universality to what are only our own prejudices. Even in animals the uniformity is only apparent. The instinct of each individual creature is the concretion of its own judgments; the lower in the scale of creation, the simpler the conditions, and the simpler and fewer the judgments. Hence *their greater uniformity*. These principles give an easy ex-

planation of the greater certainty and perfection of animal instincts; they are solely the result of narrow limits and frequent repetition.

This selection of philosophic views may be concluded by two of the present day, which, though both starting from without, and dealing with the inner life as a reflex of the outer, present the phenomena of Instinct under different aspects.

The first view bears a close resemblance to that of Condillac.

In fact it is his theory remodelled by modern physiology. Life with all its powers is an evolution starting from the response to the simplest impressions, and rising to those complex physical and psychical states which respond to the most complicated and varied groups of outward stimuli. Intelligence is evolved by successive stages from the simplest manifestations of vital action. Each stage is a reflex of external relations which rise successively from simple to complex, from general to special. Psychical states are thus produced by physical relations, and the coherence between the former is proportionate to the persistence of the latter. Obviously the simpler the outward relation, the more stable and organic the mental states, the more automatic the actions which are their result. The starting-point is a single impression and a single contraction. The connection between these is indissoluble, and the reaction wholly automatic.

But there is a distinct transition to a combination of impressions, and at this point Instinct replaces Reflex Action. The combination of impressions involves three conditions, which distinguish the higher power from the lower. First, the impressions are made successively rather than simultaneously; secondly, to be co-ordinated the impressions must be brought into relation through a common nervous centre; thirdly, the outer relations and the inner relations which are adjusted to them are more complex and special. Instinct, then, is connected with the centre of life; it is essentially a function or rather stage of mind.

Again, as in the progress of evolution the physical relations and the corresponding psychical states become more compli-

cated and more special, the latter gradually lose the consistency which is the result of the incessant repetition of the simpler relations. The response of mind loses its automatic character, and Instinct merges into a higher faculty, the faculty of comparing, judging, choosing, that is, intelligence. Instinct is thus the intermediate stage in the evolution of mind. From reflex action it is distinguished by the complexity of the relations, outer and inner; from intelligence by the coherence of the psychical states.

The other writer alluded to employs the term to answer the question—What is the first fact upon which the reciprocal action of matter and mind is based?

Bain.

It is easy to trace the evolution of the mental powers in response to matter. Such a theory may be as true as it is plausible. If the impressions conveyed by matter be treated as occasions rather than causes, such a theory is quite compatible with a reasonable idealism. But if traced backwards there is a point at which the action of matter is no longer conceivable. Positivism may say that at this point our experience ceases, and what is beyond experience is a void which can be bridged only by the unreal creations of imagination. Still the tendency of human reason is to get to the tortoise, even if it can construct nothing to support it. Experience goes no further than the first material impression. But reason, tutored by experience, informs us that there can be no impression without something impressed; and, again, that the response to a given impression varies according to the thing upon which it is made. Thus experience pre-supposes a something, and a something of some particular nature, to be not only its starting-point, but to contribute to its results. There is, then, a primitive element of mind as well as a primitive element of matter. Further, the reciprocal action of these primitive elements must commence with one or the other of them. To refer the beginning of it to a third power is putting off the difficulty; for granting the supposition, it must still be determined with which of the two this third power begins to work. Experience seems to indicate that *matter cannot originate changes, though it can perpetuate and*

direct them. Hence it must commence with mind. There must be some prime spontaneity of mind from which all the changes originate. This result has been arrived at chiefly as a theory of perception, but it may obviously be extended to all the relations of mind and matter.

The writer, then, affirms that this spontaneous force working in the primitive arrangements for action is Instinct. It is Instinct which gives the simplest organic response. It is Instinct which starts combined and harmonious actions, as for instance the movements of the limbs. It is Instinct by which feeling is primarily connected with its outward expression. It is Instinct which supplies the first link between feeling and action—the germ of will. Instinct is the original activity on which association works. But it is not a self-developing activity, like the Instinct of Leibnitz. It is only the prime spontaneity of life which can be moulded into any form according to the impressions of matter.

It is not proposed here to estimate the principles upon which such views of Instinct, as we have been considering, are founded. It is enough to notice that these views (and they may be taken as a fair sample of all philosophic views on the subject) indicate two leading conceptions of Instinct—on the one hand as an original power of nature, on the other as an acquired power. This result may reasonably be assumed as a guide in analyzing the nature of Instinct.

But before the nature of Instinct is treated, it is necessary to consider whether there is such a faculty at all.

I. Whether Instinct is.

The obvious arguments from popular consent, language, and philosophic theory may be passed over. The

Method to be followed.

real question is whether the facts, the phenomena referred to what is called Instinct, necessarily involve an independent faculty, or may be referred with equal probability to other powers. By an independent faculty is of course meant a special determination of the vital force. The vital force is essentially a unit, and it is only in their phenomena that its separate determinations or faculties can be distinguished.

The question, then, is whether the phenomena of Instinct form a distinct group, or can be referred to other groups.

The phenomena of Instinct are certain activities put forth by living organisms. They include changes of matter and changes of mind. Their most obvious characteristics are complexity and uniformity.

Again, the manifestations of vital force may be referred generally to two heads, or types of activity. The one is self-determining, self-regulating; the other determined and regulated, not by self but by organization or impulse from without. This distinction may be held even by the materialist, for the faculties are not being considered in their origin, but in their phenomena.

The phenomena of Instinct, then, must be referred to one or the other of these types, or to some type distinct from each. In the latter case Instinct will be an independent faculty, and its nature and its relations to other powers will be the next point to discuss. In the former the problem will be solved by analyzing the phenomena into more clearly recognised principles.

The clearest instances of vital force determined by organization or external impulse are the growth of the vital tissues, with all processes subservient to it, as breathing, digestion, circulation of the blood, and processes analogous; and again, the direct reaction of the nervous system to external impressions.

(a.) Phenomena of Instinct compared with those of pure mechanism.

With such instances of activity, then, must instinctive actions be compared, to judge whether they are phenomena of the same force, or class of force.

Well, then, is there sufficient similarity between the writhing of a spider when a pin is driven through it, or its digestion of a plump blue-bottle, and the patient regularity with which it completes its web, nay more, the care and precision with which it repairs rents in its web,—to class the one phenomena with the other?

The caterpillar feeds on mulberry leaves, wraps itself in its *cocon*, where it becomes the chrysalis, and finally bursts from the

chrysalis as the imago. Here is a complete round of material changes in organism. But again, if the caterpillar is shaken from its tree, it immediately crawls towards the trunk, and ascends to its old pastures. Are these phenomena of the same class?

Once more, the solitary wasp lays its eggs in holes bored in the sand; over the eggs it coils as many green grubs as are necessary to support the larvæ till they attain maturity. But the wasp itself feeds not on animal but on vegetable matter. Is this activity of the same class as those which expand the egg into the larva, the larva into the wasp? or again as those by which the holes were bored and the grubs coiled?

Are the curious adaptations of the nests of birds to peculiar circumstances, dangers, &c., are the elaborate dams and store-houses of the beaver, phenomena to be classed with the growth of feathers or hair, or modes of flight and gait?

Or again, in man are the phenomena of digestion of the same class as the first carrying of food to the mouth, and the first act of chewing?

In all these cases it may be truly answered that both sets of activities are results of organization, and responses to impulses from without. But the question is, not whether they are absolutely distinct or not, but whether instinctive activities are of the same type as organic activities, or shew such points of difference as to warrant referring them to a different class of manifestations of vital force.

The instances given seem to point to the latter conclusion.

Not to be classed together. Instinctive actions are complex both in circumstances and operation, organic actions simple. In the former there is a co-ordination of means to ends. In the latter, action and reaction is more direct and immediate. Again, the former seem more concentrated; they set the whole vital fabric in motion: the latter are more limited to special parts of the organism.

The phenomena of Instinct, then, must be compared with those of the other type of vital force—that which determines and regulates itself; in other words, Intelligence.

(s.) Compared with phenomena of Intelligence.

What chiefly marks the actions of Intelligence is knowledge and choice. As in instinctive actions, there is an end and means; but the former is not only attained, but known and designed, and the latter are not only set in motion, but estimated and chosen. They are not only adaptive, but consciously adaptive.

The question then is, whether knowledge and choice can be traced to such a degree in instinctive actions as to justify referring them to the same source as acknowledged intelligent actions.

The building of the honeycomb will be a fair instance to put to the test. In its construction the economy of space and material involve the application of high mathematical principles. Though the perfection of the execution has been absurdly exaggerated, there is no doubt of the general perfection of the plan: the end is attained, and that by the best means. So far there is nothing inconsistent with this operation proceeding from knowledge and choice. Suppose it so to proceed. Then from experience of actions in which knowledge and choice are found, it follows that each bee must attain his skill gradually, by experience—must remember, compare, infer. Again, one bee would have recourse to one way, another to another, for there being a choice, it would be inconceivable that all should take exactly the same course. But both results are at variance with nature. Bees work with the same skill at first as afterwards, they have no improvement or education; and further, all bees work in exactly the same manner.

The comparison will perhaps be clearer when we can get an intelligent activity and an instinctive activity side by side.

Birds certainly have intelligence. The intelligence of the wren cannot be doubted, who, building her nest in a quarry, soon learnt to fly away when the danger-bell rang, and who, afterwards, when the experiment of ringing the bell without any explosion following had several times been tried, declined to leave her nest at the sound unless she saw the workmen moving off too.

But the same bird selected a suitable place and materials for her nest, sat patiently on the eggs for the proper time, and

when her young were hatched, hunted in likely spots for their natural food. All these latter are instinctive actions. Are they sufficiently like the former to be classed with them? The same supposition will result in the same inconsistencies as in the case of the bees. What would become of the young wrens if their mother was to experiment on the time of sitting, or the grubs best suited to their palates?

Once more, in the case of man, to take the highest class of Instinct, that which determines the mind to accept truths. Are the beliefs in the truth of the senses and the reality of matter to be classed with the convictions resulting from demonstrations of which the premises are data of experience or necessary truths of reason? Both are mental determinations, but the latter are results of reasoning, the former so far from being its results, that it has no effect upon them. Convictions when disproved are replaced by others. What is instinctively believed may be disproved, but still remains. The instinctive activities of mind are prior to and independent of knowledge. Again, they are, as far as can be judged, the same in all men, and operate in the same way. They are obviously not the result of choice, for they cannot be willed away.

There appear, then, sufficient grounds for not referring the
Not to be classed together. facts of Instinct to the activities of the self-regulating vital force Intelligence.

Instinctive activities are more uniform—intelligent more special and various. Instinctive actions are similar in all individual species, and, again, similar at all times in the same individual. Absolute uniformity is not asserted. What is asserted is, that there is so much greater a degree of uniformity in instinctive actions than in intelligent, that they must be classed apart. For, as we have seen, this uniformity is sufficient to exclude the two great requisites of intelligent activity, knowledge, and choice.

If we are right in distinguishing instinctive activities from intelligent as well as from purely organic activities, it follows that they are an independent group of phenomena, which point to an independent faculty as their source.

II. What Instinct is. Instinct, then, is something.

What Instinct is, must next be considered. And the answer will best be given by an analysis of the relations in which this source of phenomena stands, first, to nature, and secondly, to its special determinations or powers.

Now the nature of each creature is composed of two elements, (a.) Instinct is the one original, the other acquired. It is the original. sum of the constitution or original powers, and the changes and developments produced in those powers by the way in which they are habitually brought in play.

The first question about the nature of Instinct, then, is which part of the nature it belongs to; whether it is original or acquired.

This has not been answered by the preceding discussion, for in that the independence of its phenomena alone was shewn, not the independence of the faculty in its source.

If Instinct is acquired, there must be something prior to Instinct, from which it is developed. Such prior elements will partly belong to original constitution, partly to the forces which modify it. The theories of Condillac and Spencer state this alternative in the strongest way. Both make Instinct a development by means of association. The former finds the prior element in intelligence, the operations of which become unconscious or instinctive by repetition; the latter in the response of nature to impressions from without, which becomes instinctive as soon as the impressions are so complex as to require co-ordination through a common centre.

Both theories may be sound views of certain states and developments of nature. But it may be possible that they are not rightly called instincts, but arise from a confusion with other principles which resemble Instinct in their phenomena but not in their origin.

Well, then, are instinctive activities in their ordinary acceptance intelligent activities made unconscious by repetition?

This seems negatived by the fact that the instincts are shewn alike in the youngest creatures and in the oldest, while intelligence is a slow growth. The higher the organization of the

creature, the more is this evident. In man, the infant seeks its sustenance, grasps at objects to prevent falling, &c., long before intelligence is awakened. Intelligence appears rather to follow and supersede Instinct in man than the converse.

But if the instinctive activities appear before the intelligent and yet are the results of intelligence, they must be inherited habits, and their intelligent source be referred to a previous generation. This is obviously only putting the difficulty a step farther back. Besides, the whole supposition violates the law established by experience, that everything proceeds from the simple to the complex, the lower to the higher.

It may be objected, that though Intelligence cannot be held to be the source of Instinct, still Instinct may be an acquired faculty, if instinctive actions can be shewn to follow the smallest element of sensation. The activity would then be the result of the associations grounded on the prime sensation.

There are two reasons which make against this view.

First, instinctive actions seem equally immediate and certain from the first, while all habitual activities are at first uncertain, and become fixed only by time and repetition.

Secondly, if it is not indispensable to assume some pre-existent power in the sentient creature to make the sensation possible, it is certainly impossible to deny that there must be some power—or if that word is objected to, original adaptation—to make the first reaction to the sensation possible.

When the young flycatcher, fresh from the shell, snaps at his first fly, he shews an immediate knowledge of his proper food, and still more, the nicest discrimination of distance, time, and the direction and degree of muscular force. Why is it that he snaps at the fly, and not at the twig above the nest? Why is it that he catches his first fly, and does not need disappointment to quicken and direct his perceptions?

Again, the kid just dropped, if milk, wine, oil, &c., be presented to it, will at once select its proper food. It may be said it chooses from smell. Very good; doubtless that is the proximate cause. But is it accident, or is it some pre-existent adaptation which makes it approve one smell and reject another?

But in ordinary language both these would be called instances of Instinct. The same term might be applied to subsequent similar actions, which might very well be results of association. But it would be applied to them because of their resemblance to the primary actions. This resemblance consists in the manner of operation: both sets are performed impulsively and uniformly. But that this resemblance is not sufficient to identify their origin, is clearly shewn by the very nature of habitual actions. Their point consists in coherence and uniformity as the result of repetition. They have no spontaneity in themselves. They rather imply a previous spontaneity as the starting-point of their development. The question is, to which of these, spontaneous action or habitual action, the term Instinct properly applies. Language points irresistibly to the former application. And this may be further illustrated by cases of forced or unnatural habits in man. Intelligence and will may run counter to the primitive feelings, and by repetition this unnatural action may become habitual. But it would be inconceivable to call such activities instinctive, however fixed and uniform they might become. On the contrary, the very reason for disapproving them would be their opposition to Instinct.

On the whole, then, it may be concluded that if there is anything original in nature, Instinct is one of the elements of that original constitution.

The instincts of each creature seem to be primary and original, as having the principle of spontaneity in themselves. As an explanation of the history of the individual, the theory of evolution does not seem to hold good. The first element of Instinct seems contemporaneous with the first element of organic reaction, if it is not to be considered as its pre-existing condition.

But the question arises, what original constitution means.

(#.) Is Instinct
susceptible of modification ? If so,
in what sense ?

Is it something permanent for all time, or original only in the sense of the prime elements out of which the life and living powers of the individual are evolved ? This is another way of asking

whether the theory of evolution holds good of successive generations. And its connexion with the present subject is given in the second question about Instinct.

Is it or is it not susceptible of modification?

It may be that all existence began in simple reaction, and has been developed by successive associations of actions and impressions each more complex than the preceding. It may be that slight variations in these associations have by accumulation and selection produced all the forms of being now in existence, and will in time to come develop the best of present forms into still wider and more forcible types. The nature of each creature, then, is the impress of the associations of past generations, and its instincts the spontaneous reproduction of those associations.

Or again, it may be that the types of existence are eternal, and always tend to struggle to light through the associations which encrust, but do not mould them.

But so extensive a problem is beyond the present object. That will be satisfied if it is determined whether or not the nature and instincts of each creature are practically fixed within the limits of experience.

In settling this point two principles established by modern physiology may fairly be employed. The first is, that all exercise of the vital powers modifies the organic structure; the second is, that modifications of structure are to some extent hereditary. The limitation is used advisedly. It is not proposed here to settle the problem whether the natures of creatures are or are not eternal, and whether modifications do or do not exhaust themselves and revert to the original form. It is enough to inquire at present whether there is in each creature a practically fixed type of existence; that is, something over and above all temporary modifications, which abides, and exercises a more lasting force than those modifications. Whether it is really abiding, or merely the result of more persistent associations and modifications, is not to be settled here.

Now Instinct, so far, is determined to be an original force of nature—a prime activity or responsiveness, or whatever term seems most applicable. The conditions to which the primitive tendencies or instincts respond, may be called the natural conditions of the creature. Unless we maintain that these primitive tendencies have in themselves a power of self-expansion into other forms (an hypothesis needless to discuss), the relation of the original tendencies or Instincts to their modifications, the superinduced tendencies or habits, must depend on the proportion of the natural conditions to the variations in them. New conditions call for new determinations of activity, and the persistency of the new conditions generates habitual activity in their direction. But structure adapts itself to the mode of exercise, and so new conditions, and the habits formed to meet them, produce corresponding organic modifications. And again, as such modifications are transmissible, the next generation will have slight modifications of the primitive tendencies corresponding to the structural changes involved in the habits of the preceding generation. Habit may thus generate Instinct, though it never precedes it in the history of the individual.

Again new conditions and corresponding habits may supersede the primitive tendencies. Where the new conditions are widely different from the original, the deviation is correspondingly rapid, and the primitive tendency may almost be lost sight of. This is most clearly seen in domesticated animals. In them the variety of new conditions, and especially the direct relation to an intelligent and choosing force, man, visibly modifies structure and instincts. To take the animal most thoroughly brought under such conditions, the dog, we find scarce a trace of such original instincts as burrowing, but in their place acquired instincts, such as pointing. These modifications of structure and Instinct are ultimately based on associations, and are certainly hereditary as long as the conditions which produced them are maintained.

That original tendencies are thus modified, and that the modifications admit of transmission, seems a reasonable result of physiology. The question is chiefly as to the degree in which this is practically possible.

How far modifications are possible.

In other words, what is the proportion between the natural conditions and new conditions which can be introduced? It is obvious that there can never be a total change of conditions: such a change would at once involve the destruction of existence. The nearest approach to such a change is in the cases, if true, of children brought up apart from men by wolves, &c. These cases are evidently not applicable to the solution of the present problem. They are rather instances of the destruction of all principles original or acquired, than of the development of new associations, new organizations, new instincts. What we have to deal with is the normal development of life and its powers. A careful consideration of life in its phenomena, seems to shew that the natural conditions so vastly preponderate over the new conditions, that changes in structure and Instinct are extremely small and slow. Practically at any one time the nature and instinctive tendencies of a creature are fixed and permanent, while its acquired activities or tendencies are contingent and temporary. And this is corroborated by the fact that where there is any strain upon the conditions, as in the case of domesticated animals, although the new conditions are met by habits, and by organic changes, which are transmitted as acquired instincts, yet as soon as the strain is removed, these tend to relapse into the original forms of activity.

And this discussion necessarily leads to another.

(γ.) Is Instinct flexible in its application?

How is it that nature responds to new conditions at all?

It has been shewn before that the first responsive activity cannot result from association, but is essentially prior to it. The acquired powers are posterior to the new conditions. It follows, then, that it is the original powers which respond not only to their proper conditions, but also to new conditions. And here the word 'new' must not be pressed

too far. It is in the sense of varied, not in the sense of different. A reversal of conditions is only met by the crippling of the corresponding part of the nature. But to a variation in the conditions, the natural spontaneity does respond, at first uncertainly, and gains consistency and direction by association. Thus the sparrow, whose original instinct makes it build under eaves, when it builds in trees, adds a cover to its nest. This adaptive power of Instinct can hardly be shewn more clearly than in the well-known case of the ravens at Newcastle, who secured their young from the wind by building on the leeseide of the weathercock.

Instinct, then, is an original principle of nature which responds directly and certainly to the natural conditions, indirectly and uncertainly to variations in those conditions, and may be modified temporarily or permanently by associations arising from such variations.

Its relations to outward conditions have been considered. It remains to determine its position more exactly among the original elements of nature, by examining its relations to inward powers or adaptations.

The natural constitution, that is, all that is original in nature, consists of two factors, structure and force. Structure is the instrument of force, force the development of structure. Structure consists of primary adaptations, force of primary activities. Again, both structure and force may be classed under two heads, and be called physical or psychical.

Now, first of all, Instinct is certainly not structure. Its whole scope and meaning may be the development of structure, it may be inseparably connected with it, but its essential nature is that of force.

In discussing the existence of Instinct as an independent faculty it has been sufficiently shewn that Instinct is not the proximate cause of the simpler physical activities, that it is not Instinct which carries out the lower adaptations of physical structure. To apply the term to these elementary activities would be to make it co-extensive with life. This would violate the principle laid down at first, that the word is to be explained

as used, and not to be twisted to new applications. It is only when the activities are so complex as to be referred to a common centre, that is, to be correlated as the harmonized energy of the whole of an active unit, that they can properly be called instinctive. But it is exactly this which distinguishes psychical from physical activities. All the lower and more special functions of organic life can be carried on by the simple responses of physical force. But complex activities require a co-ordinating, harmonizing power—that is, a power of mind. To put it in another way, the simpler functions can be carried on by the direct reaction of the spinal cord and the ganglia in connection with it; the more complex functions require the co-ordinating power of a brain. Hence, if the limitation as to Instinct hold good, it is essentially a psychical power.

Again, in discussing the independence of Instinct as a faculty, it was shewn that Instinct was not identical with the highest type of psychical activity, that which is self-conscious and self-determining. And for this reason—instinctive activities, if the applications were correct, lack the two distinguishing marks of intelligent activities, knowledge and choice. They are excluded by the uniformity and spontaneity which mark instinctive activities.

Hence to the notion of Instinct as an original psychical force or power may be added unconsciousness and impulsiveness.

(e.) Unconscious.

Instinct, then, is an original force of nature, essentially psychical as involving complexity and harmony, essentially unconscious and impulsive as involving uniformity and spontaneity.

But does the activity of Instinct commence directly after leaving the sphere of consciousness? Consciousness alone admits of knowledge and choice, and hence is necessarily connected with intelligent activity. But are there no powers out of consciousness other than instinct? Modern science acknowledges that consciousness is only a small line of psychical life. It is only when we attend to psychical states, that is, when we are conscious, that we know and choose. But it is established that the psychical powers work without our attention. The

question to be met is, whether these unconscious activities of mind are instinctive. Are they uniform? Are they not rather most varied and special? Are they spontaneous? Is not their apparent spontaneity rather as regards their entrance into consciousness, than their entrance into psychical life? It is needless to press this point. That they are the result of association is evident from the fact that they reproduce in new combinations elements that had previously had a place in consciousness. They bear the same resemblance to real instinctive activities that Habit bears to Instinct in its operation.

But the essential priority of Instinct to all association has been already seen. By prior it is not merely meant
 (5.) Prior to other psychical powers. that Instinct cannot be resolved into, or identified with association, but further, that it is the original condition of all association, as giving the spontaneous reaction upon which it works. Hence Instinct is prior to all psychical powers, unconscious as well as conscious, so far as they are the result of association. What this priority really implies can only be understood by an examination of the simplest elements of the original psychical powers.

Now psychical structure and psychical force can be divided into three heads, according as they are adaptations and determinations for action, for feeling, for thought. Every psychical activity takes one or other of these forms, or is compounded of elements from each.

Action is seen in its highest form in the conscious phenomena of will. In those phenomena the psychical adaptations for action are carried out not only in their primary form, but in response to a variety of conditions. Whether the will be regarded as free or necessitated, its relations to Instinct are much the same. Both are determinations, but the one is from choice, the other from impulse. Whether the word "choice" or "balance of motives" be used, is of little consequence. The point of difference is, that to will is presented a variety of alternatives or motives, to Instinct a single activity. But passing over the relations of the two powers, which *may be given implicitly* by saying that the one is conscious, the

other unconscious, let us consider whether there is any connection between them closer than that of being both psychical powers.

If the phenomena of will be traced back to their simplest elements, there is a point where there is no motive, that is, where there is no consciousness. At this point will properly ceases, or rather has not begun. The primary activities before they rise into consciousness, and become the matter of will, are direct responses to emotion. Still further back they are the immediate reaction to the simplest sensation. The connection between action and emotion, or sensation, may be a result of association. But if this too be reduced to its lowest and earliest form, we reach a point at last where the response is wholly spontaneous; that is, in analyzing the phenomena of action, the ultimate element is Instinct. There are original psychical adaptations for action, and an original determination of psychical force to action, and there are natural conditions corresponding to the adaptations. The spontaneous and immediate response of the force through and by the structure to the natural conditions, is instinctive. And it is the primary element of action. Further, as physical structure is the instrument by which psychical powers are brought in contact with matter, the primary physical co-ordinations will also be the result of Instinct.

Again, with regard to feeling, if the elements of association
(II.) Relation to are removed from emotional states, and if they
Feeling. are traced back to their simplest elements, it will
 be found that these must be referred to an ultimate spontaneity. Some emotions, indeed, seem to respond immediately and directly to their objects. Such are the primary affections. No reason can be assigned for them, and they cannot be analyzed into association. They seem the immediate response of the primary adaptations for feeling to their natural and proper conditions; that is, they are instinctive. Other emotions are more complex, and may be analyzed into principles of association, or principles of reason. Such are the love of what is good, and the admiration of what is beautiful. In their developed

form they may be referred to those principles, but not in their primary elements. What is it which determines the first response of emotion to its objects? Beauty may be, as an eminent writer has described it, an aggregate of bits of pleasurable association. But on what was each of these bits grounded? What was it that made them pleasurable? The only solution is a primary spontaneity of psychical force, which harmonizes the primary adaptations for feeling with their natural conditions in an immediate response, which is the first element of emotion. And this spontaneity is Instinct. Again, for the same reason, as in the case of action, the primary connection between feeling and its physical expression is instinctive.

Thought is the third head of psychical structure and psychical force. All thought may be analyzed into two (iii.) Relation to
Thought. elements—the one particular and contingent, the other necessary and universal; the one coming from without, the other from within. The former are inferences from experience, and the most elementary form in which they are found is the first perception. Perception is the reference of sensation to an external object. It is not a result of knowledge, for the first sensation is necessarily prior to all knowledge; nor, again, of choice, for it is an immediate reaction to a single impression. But for such a reaction to be possible, it is necessary to suppose a primary adaptation, and a primary determination of psychical force, causing an immediate response to the natural conditions. There must be a spontaneous impulse to perceive, or there would be no perception. Perception is intelligent, for the act immediately becomes an element of consciousness. But the cause of the act taking place at all in the first instance must be Instinct. And in this instinctive spontaneity of perception is the origin of the principle of curiosity, which is the spring of all speculative activity.

Again, the objects of all thought are of three kinds. They are either relations in mind itself, or relations in matter itself, or relations between mind and matter. All these groups of thoughts depend ultimately on perception, and so on the spontaneous force, or Instinct, which makes perception possible.

But besides that, these groups of thoughts will be found on analysis ultimately to depend on three simple thoughts which are incapable of further dissection. These thoughts are these: first, mind is; second, matter is; third, the relation between mind and matter is. The two characteristics of these thoughts are that they come into the mind we know not how, and that they come and remain whether we will or no. In other words, the force that determines them is unconscious and impulsive. It cannot be habit, for we have seen that these thoughts are ultimate and irresolvable. Therefore they must be determined by instinct. These three thoughts are the primary beliefs, the conditions of all knowledge, the beliefs in personal identity, in the reality of matter, and in the truth of the senses.

Once more, thought is not sent adrift among the contingent elements of perception. It is guided into certain channels by the necessary truths which inevitably enter into and determine the form of inferences about contingent matter. These necessary truths or thoughts may be the result of experience, from the greater persistency of certain relations. In this case they would be referred ultimately to perception and to association, both of which, as we have seen, involve the pre-existent spontaneity of Instinct. Or, again, they may be part of the primitive adaptations for thought, a formative element in the structure which necessarily moulds the determination of the psychical force through it. In thought they appear in two ways, first as themselves distinct elements of consciousness; they are then the objects of reason, which immediately recognizes their necessity, and hands them over as luminous principles to the discursive faculty: secondly, they appear as the necessary shape of other thoughts. The relations which the thoughts represent may be determined by association, but the form in which they are thought is the spontaneous result of the psychical force developing the psychical structure. As conscious elements of thought they are developed by reason. As unconscious elements of thought they are the result of Instinct. Instinct determines thought blindly in harmony with them.

Reason grasps them clearly as the laws to which all thought must agree.

For thought, then, there is a primitive psychical structure adapted for a group of natural conditions, and there is a primitive psychical force. In its original spontaneous activity this force responds directly and harmoniously through the structure of thought to the relations which are its prime object. And this determination is essentially instinctive. Instinct not only gives the prime responsiveness, without which perception, the first element of thought, is inconceivable, but blindly develops the primitive adaptations of thought into forms of consciousness.

And again Instinct, as a psychical force, must not be confined to the spontaneous development of psychical structure. It develops physical structure also, so far as it is the instrument of psychical determinations. This has been seen in the primary co-ordinated movements of the active powers, and in the primary physical expression of emotion. A still more striking instance is presented in language, the physical expression of thought. The same spontaneous force which determined the prime perception determined also the co-ordination of the muscles of throat, tongue, lips, to produce sounds in harmony with ideas.

Before passing from this part of the subject, it may be interesting to consider the relation between Instinct and genius. Genius seems to be the highest power of immediate thought—that which realizes the true, the beautiful, the right, without the usual steps. Its operation is essentially impulsive and unconscious. This resemblance to Instinct has often given rise to a confusion between the two faculties. The true analysis of genius is evidently to be found in the well-established theory of the unconscious activities of mind. Associations are ripened and combined without the limits of consciousness, and where this unconscious process is deeper and more comprehensive, genius is present. Its results arise from a more than ordinarily vigorous play of *the latent modifications* of mind. Genius, then, in its opera-

Relation to
Genius.

tion, bears the same relation to Instinct that all habitual activity bears. But, again, the relations of thought, feeling, and action, which genius attains thus unconsciously and impulsively, seem to be those which are most in harmony with the highest type of human nature. Genius would thus appear to consist in richer primitive adaptations, in greater vigour of spontaneous force, in fuller harmony with natural conditions. Instinct would co-exist with genius proportionately, as the first condition of its development.

What, then, is the result of this brief analysis of the
Summary and
Conclusion.
psychical powers into their beginnings?

They all seem to depend ultimately on three elements: the first, structure; the second, force; the third, conditions. There are primitive adaptations which give the form to the first rudiments of psychical life; there are spontaneous determinations which give them their activity; there are outward relations with which they are brought in harmony.

Instinct is the psychical force which responds directly and spontaneously at once to the natural adaptations and to the natural conditions. It is the mental condition of activity, as relation to material impressions is its physical condition.

It may be objected that this view has been obtained too much from a consideration of human nature only. But from the facts of the case there seems to be no ground for making a distinction of kind between Instinct in man and in the lower creation. It seems essentially the same in both, in its nature and in its operation. The difference of degree seems to result chiefly from its co-existence with higher principles in man. At any rate, it seems to consist in the same relation of force and nature in all beings. The higher and more complex the nature, the higher and more complex the operation of the force. We are justified, then, in taking man chiefly for consideration, as his nature is the highest and most complex within our experience, and more than that, is the only one of which we have a conscious insight.

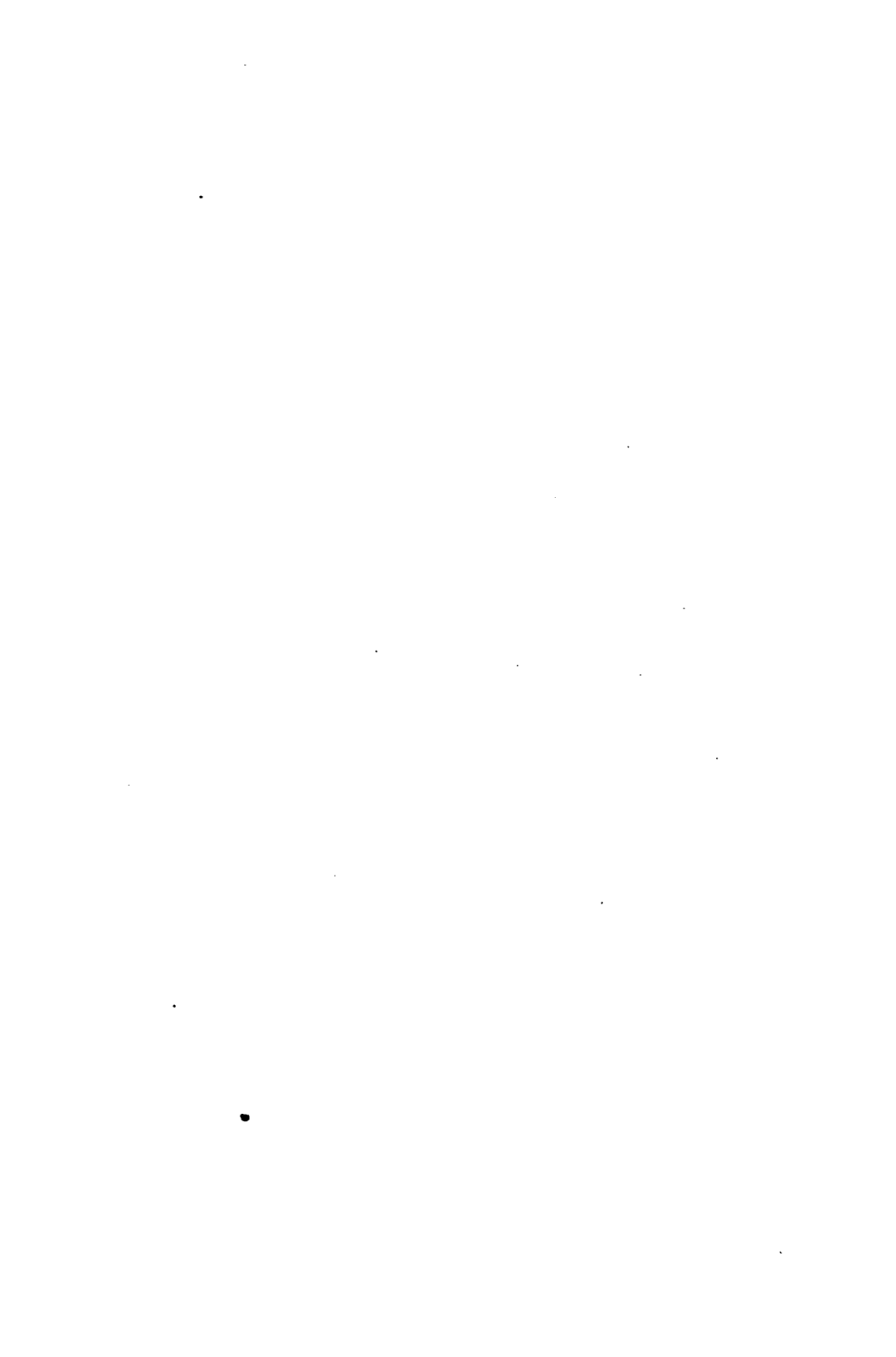
Instinct has been treated as an original psychical force, prior to consciousness, and to all psychical determinations, as t

which gives them their first spontaneous element. It is not meant to exclude or to affirm other original powers. Such powers may be involved in the primitive adaptations, which Instinct spontaneously impels to activity. Or they may be the energies of a vitality within and above all structure and all force, of which the prime link to organized life is the apparent spontaneity of Instinct. Such hypotheses may be truths or fancies. What has been attempted here, is merely to evolve a theory consistent with the experience of nature and life.













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